CLAIMS

1. A porous preform vitrification apparatus comprising: a furnace core tube accommodating a porous preform, a heating furnace surrounding the furnace core tube and heating the furnace core tube, a means for feeding a gas essentially consisting of helium to the furnace core tube, a feed rate controlling means, a discharging means, and a discharge rate controlling means,

characterized in that a gas feed branch pipe is connected to the middle of the gas discharge pipe connecting the furnace core tube and an exhaust suction pump and in that nitrogen or air is fed from the gas feeding means provided at the front end of the gas feed branch pipe.

2. A porous preform vitrifictaion apparatus as set forth in claim 1, wherein a drain conduit is provided in the gas feed branch pipe connected from the gas feeding means to the gas discharge pipe.

3. A porous preform vitrification apparatus as set forth in claim 1 or 2, further comprising a mechanism for

detecting a pressure difference between a pressure in a furnace core tube and a pressure in a heating furnace body and

comprehensively controlling

a feed rate of the gas to the furnace core tube,

a discharge rate of an exhaust from the furnace core tube,

a feed rate of an inert gas into the heating furnace body,

a discharge rate of the gas from the interior of the heating furnace body,

a feed rate of a gas such as nitrogen fed to the gas feed branch pipe, and further

a gas discharge rate of the exhaust suction pump based on a differential pressure

signal with the pressure in the furnace core tube as a reference.

4. A porous preform vitrification apparatus as set forth in claim 3, wherein the feed rate of the nitrogen or air fed from a nitrogen or other gas feed branch pipe is controlled to 15 to 50% of the rate of the treatment gas essentially consisting of helium fed to the furnace core tube.

5. A group of porous preform vitrification apparatuses comprised of a plurality of porous preform vitrification apparatuses as set forth in claim 1 or 2 arranged in parallel, characterized in that

an exhaust suction pump is provided for every porous preform vitrification apparatus, and

a common exhaust gas treatment device is provided on the discharge side of the exhaust suction pumps.